

# Synergy™ NEO HTS Multi-Mode Microplate Reader

The smart alternative for today's assay development and screening applications.





## The Smarter HTS Reader

Synergy™ NEO is designed for today's HTS screening assays, featuring multiple parallel detectors for ultra-fast measurements and a dedicated filter-based system for live cell assays. Adaptability and flexibility, along with speed, are key requirements of today's screening laboratory. Synergy NEO was designed to meet these new requirements, without compromising on performance.

### Hybrid Technology™

Synergy NEO's filter-based optical systems are a primary component of the patented Hybrid Technology\* found in several Synergy models. This exclusive technology combines high-performance, filter-based optical systems with quadruple monochromator optics, providing both excellent performance and assay versatility. For added application flexibility, a laser-based Alpha detection module is available in select NEO models; a powerful addition to the Hybrid Technology.

**2012 DRUG DISCOVERY PRODUCT OF THE YEAR - SCIENTISTS' CHOICE AWARD**



\*US patent 8,218,141

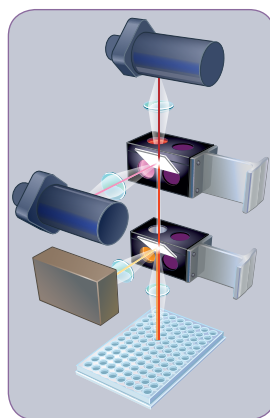


## Optimized Optical Design

Optical design is critical to the performance of multi-mode microplate readers. NEO's filter-based optical systems are designed to create a compact, direct, unobstructed light path to minimize light loss and to maximize light delivery to both the sample and detector.

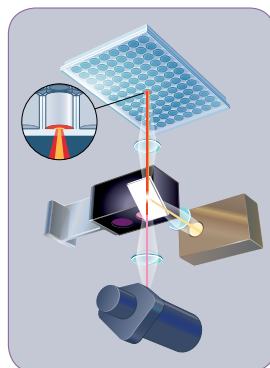
This filter-based system is the perfect complement to the monochromator optical system which provides wavelength selection with a quadruple grating architecture for uncompromised flexibility. Any assay from the low UV to the near infrared may be automated on this reader, without ever needing a new filter.

### Synergy NEO's Top-Reading Filter Optical System:



- ▶ Fiber-free light path means less light loss and stronger excitation signal
- ▶ Dual PMT detectors provide simultaneous, fast ratiometric measurements
- ▶ Mirror/filter cubes provide high efficiency and assay flexibility
- ▶ Automated Z-height adjustment for optimized detection

### Synergy NEO's Bottom-Reading Filter-Based Optics:



- ▶ Optimized for high-performance on live-cell assays
- ▶ Fiber-free light path means less light loss and stronger excitation signal
- ▶ Automated Z-height adjustment to position filter close to the sample plate
- ▶ Separate dedicated PMT detector

## Proven Performance

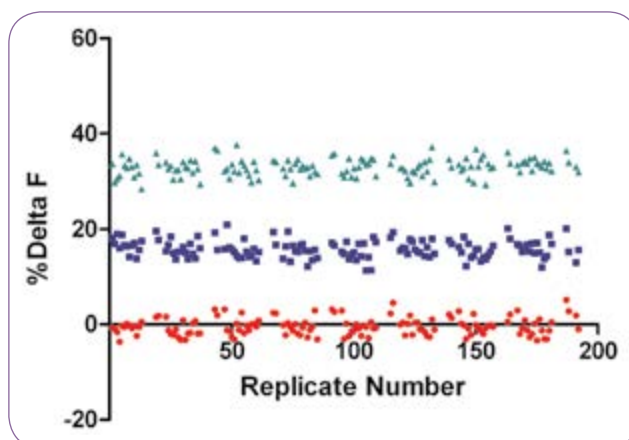
Synergy NEO's optical design results in excellent performance and high Z'-factors. NEO was benchmarked by third-party laboratories against reference instrumentation and was found to perform better than leading competitors\*. A full range of screening assay technologies was tested, including:

- ▶ AlphaScreen® / AlphaLISA®
- ▶ HTRF® / TR-FRET
- ▶ Fluorescence polarization
- ▶ Luminescence
- ▶ Cell-based assays

Early user testing found that NEO's software, Gen5™ Data Analysis Software, was much easier to use than traditional HTS reader software, with its:

- ▶ Uncomplicated, intuitive workflow interface
- ▶ Comprehensive reader control
- ▶ Powerful data analysis
- ▶ Easy export options

Visit the Tech Resources section at [www.biotek.com](http://www.biotek.com) for a complete list of current application guides, notes and poster presentations highlighting NEO's assay versatility.



	Synergy NEO (xenon)	Dual PMT competitor (xenon)	Dual PMT competitor (laser)
78 pg/mL (blue)	0.32	0.03	0.44
156 pg/mL (green)	0.68	0.50	0.68

**Z'-factor calculation** illustrates the benefits of NEO's optical design, outperforming a dual PMT competitor using a xenon flash and with performance similar to the competitor using laser-based excitation.



## Speed + Automation Without Compromise

With Synergy NEO, it's all about speed and outstanding performance. Plate reading, data analysis and throughput are all managed quickly and efficiently. Adding the BioStack™ Microplate Stacker to NEO makes it a walk-away automated platform and the fastest reader/stacker combination on the market.

- ▶ Dual PMT top optics for ultra-fast ratiometric measurements
- ▶ Read 96-well plates in 6 seconds, 384 wells in 11 seconds
- ▶ NEO stacker plate exchange time of 6 seconds
- ▶ Stacker available with 10-, 30- or 50-plate capacity
- ▶ 1-D and 2-D multi-position barcode scanning



# Synergy NEO Specifications

<b>General</b>	
<b>Wavelength selection</b>	Patented Hybrid Technology™ Quadruple Monochromators and Filter Cubes
<b>Detection method</b>	Fluorescence, Time-Resolved Fluorescence, Fluorescence Polarization, AlphaScreen®/AlphaLISA®, Luminescence, UV-Visible Absorbance
<b>Read mode</b>	End point, kinetic, spectral scanning, well-area scanning
<b>Microplate types</b>	1- to 1536-well plates Compatible with Take3™ Micro-Volume Plates
<b>Temperature control</b>	3° C above ambient to 65° C ±0.5° C at 37° C
<b>Shaking</b>	Linear, orbital, double orbital
<b>Read height</b>	Auto Z, 0.1 mm steps, top/bottom (filters), top (mono)
<b>Kinetic speed</b>	96 well: 6 seconds 384 well: 11 seconds 1536 well: 25 seconds
<b>With Stacker, minimum processing time per plate</b>	96 well: 20 seconds 384 well: 25 seconds 1536 well: 39 seconds
<b>Barcode reader</b>	Multi-directional, 2D camera-based
<b>Software</b>	Gen5™ Data Analysis Software
<b>Absorbance</b>	
<b>Light source</b>	Xenon flash lamp
<b>Wavelength selection</b>	Monochromator
<b>Wavelength range</b>	230 - 999 nm, 1 nm increment
<b>Bandpass</b>	2 nm (230 - 285 nm), 4 nm (>285 nm)
<b>Dynamic range</b>	0 - 4.0 OD
<b>Resolution</b>	0.0001 OD
<b>Fluorescence Intensity</b>	
<b>Light source</b>	Xenon flash lamp
<b>Sensitivity</b>	<u>Quadruple monochromator:</u> Fluorescein 2 pM typical - Top Fluorescein 2.5 pM typical - Bottom  <u>Filter cubes:</u> Fluorescein 0.5 pM typical - Top Fluorescein 1 pM typical - Bottom
<b>Wavelength selection</b>	Double grating monochromators (top/bottom) and, Filter cubes (top/bottom)
<b>Wavelength range</b>	Monochromators: 250 - 850 nm Filters cubes: 200 - 850 nm
<b>Bandpass</b>	Monochromators: 16 nm excitation / emission Filters: filter-dependent, from 5 nm to >100 nm
<b>Detection system</b>	Two matched PMTs top filter system Low noise PMT bottom filter system Red shifted PMT top/bottom monochromator system

<b>Luminescence</b>	
<b>Sensitivity</b>	5 amol ATP typical (flash)
<b>Wavelength range</b>	300 - 700 nm
<b>Dynamic range</b>	>6 decades
<b>Fluorescence Polarization</b>	
<b>Light source</b>	Xenon flash
<b>Sensitivity</b>	1 mP at 1 nM fluorescein typical
<b>Wavelength selection</b>	Filter cubes (top / bottom)
<b>Wavelength range</b>	320 - 850 nm
<b>Time-Resolved Fluorescence</b>	
<b>Light source</b>	Xenon flash
<b>Sensitivity</b>	Europium 40 fM typical (384-well low volume plate)
<b>Wavelength selection</b>	Filter cubes (top/bottom) Double grating monochromator (top / bottom)
<b>Wavelength range</b>	Filters: 200 - 850 nm Monochromators: 250 - 850 nm
<b>Alpha</b>	
<b>Light source</b>	100 mW 680 nm laser
<b>Sensitivity</b>	100 amol LCK peptide
<b>Wavelength selection</b>	Filter cubes
<b>Read speed</b>	96 well: 30 seconds 384 well: 1 minute, 50 seconds 1536 well: 7 minutes, 20 seconds
<b>Reagent Dispensers</b>	
<b>Number</b>	2 syringe pumps
<b>Dispense volume</b>	5 - 1000 µL in 1 µL increments
<b>Dead volume</b>	1.1 mL, 100 µL with back flush
<b>Plate geometry</b>	6- to 384-well microplates
<b>Dispense precision</b>	<2% at 50 - 200 µL
<b>Dispense accuracy</b>	±1 µL or 2%
<b>Physical Characteristics</b>	
<b>Power</b>	250 Watts max.
<b>Dimensions</b>	15.4" W x 20.7" D x 16.1" H (39 x 52.5 x 41 cm)
<b>Weight</b>	78 lbs (35 kg)
<b>Regulatory</b>	For In Vitro Diagnostic use. All BioTek microplate instrumentation is CE and TUV marked.

Specifications are subject to change.



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